

## INTEGRATED OPTICAL CIRCUITS

### ABSTRACT OF THE DISCLOSURE

An optoelectronic device having a flexible substrate and an optical interconnect  
5 (i.e. waveguide) comprising a sol-gel based material formed on the substrate. The sol-gel  
based waveguide is capable of being integrated into an all-optical system and provides  
for greater interconnect distance and lower signal loss. Other sol-gel based optical  
devices, such as filters, optical source, detectors, sensors, switches and the like, will be  
implemented in conjunction with the sol-gel based waveguides to provide for an  
10 integrated optical system. Methods of formulating the sol-gel based material and  
methods for fabricating the sol-gel based devices are also provided.

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